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Western South Dakota: Forest Statistics for Land Outside National Forests, 1984

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Department of
Agriculture

National Agricultural Library

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RESEARCH SUMMARY

The 454,604 acres of forest land outside National Forests is 7 percent of western South Dakota's total land and water area. Ponderosa pine is the predominant forest type, occupying nearly 400,000 acres. Net growing-stock volume is 450.7 million cubic feet. Average net annual growth is 22 cubic feet per acre per year.

PREFACE

The primary objective of Forest Survey—a continuing, nationwide undertaking of the Forest Service, U.S. Department of Agriculture—is to provide an assessment of the renewable resources for the forest lands of the Nation. Fundamental to the accomplishment of the objective are the periodic State-by-State resource inventories. Originally, Forest Survey was authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

The Intermountain Research Station with headquarters in Ogden, UT, conducts the forest resource inventories for the Rocky Mountain States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming. These inventories provide information on the extent and condition of the

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Western South Dakota: Forest Statistics for Land Outside National Forests, 1984

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INTRODUCTION

This report presents basic forest land information on all lands in South Dakota west of the 103d meridian except lands administered by the Forest Service, U.S. Department of Agriculture (fig. 1). This information on forest area, volume, growth, mortality, and removals was derived from inventory data collected by Forest Survey, Intermountain Research Station, in 1983. The data are presented in tables 1 through 45 at the end of this publication.

HIGHLIGHTS

Area

The land area of western South Dakota excluding National Forests and grasslands is 5,483,250 acres. Of this, only 454,604 acres are forest land, including 435,902 acres in timberland, and 18,702 in woodland. Of forest land, two percent, or about 10,000 acres, contained primarily on lands administered by the National Park Service, is reserved from harvesting wood products.

About 79 percent of the forest land is privately owned. The remaining 21 percent, other public forest land, is primarily State owned.

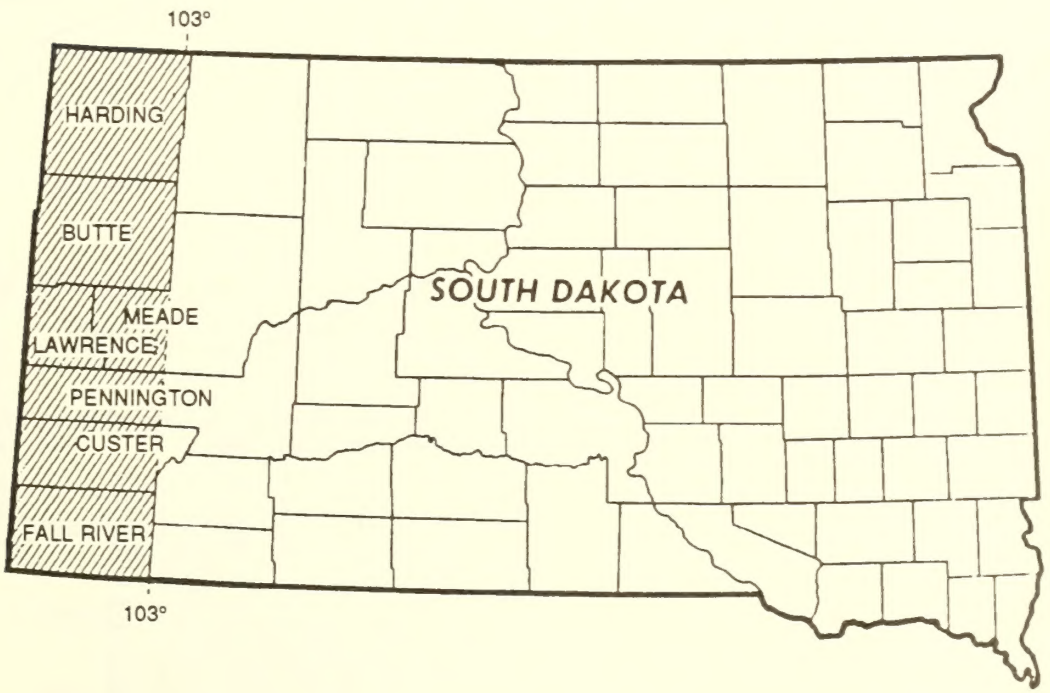

Figure 1—Sample Area.

Ponderosa pine (*Pinus ponderosa*) is the predominant forest type, making up 89 percent of forest land and 92 percent of timberland (fig. 2). Cottonwood (*Populus* sp.), the next most common type, constitutes about 4 percent of timberland. Almost all of the woodland area is consists of bur oak (*Quercus macrocarpa*).

Although sawtimber stands occupy almost 59 percent of timberland, seedling and sapling trees actually dominate timberland stands, accounting for almost 70 percent of growing-stock trees (fig. 3).

Volume

Net growing-stock volume amounts to 450.7 million cubic feet and includes 1,595 million board feet (International 1/4-inch rule) of sawtimber. Ponderosa pine accounts for 96 percent of the net volume of growing stock. Over 53 percent of the net volume of growing stock is in the 10.0-, 12.0-, and 14.0-inch diameter class trees (fig. 4). The average net growing-stock volume per acre is 1,055 cubic feet.

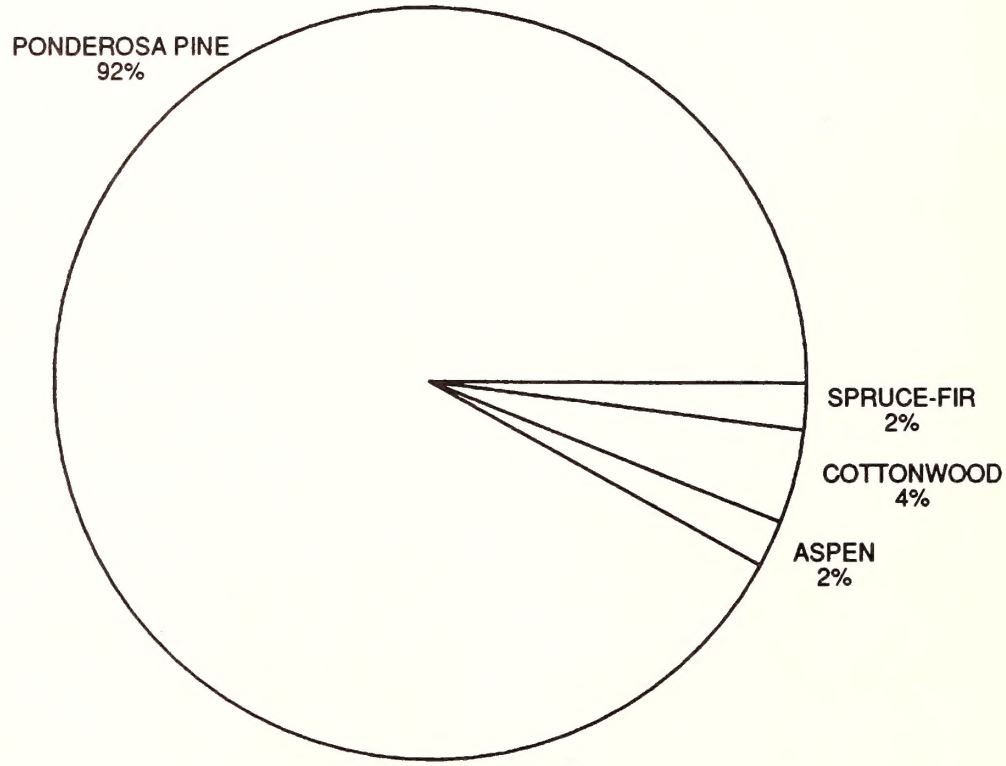

Figure 2—Distribution of timberland outside National Forests by forest type in western South Dakota, 1984.

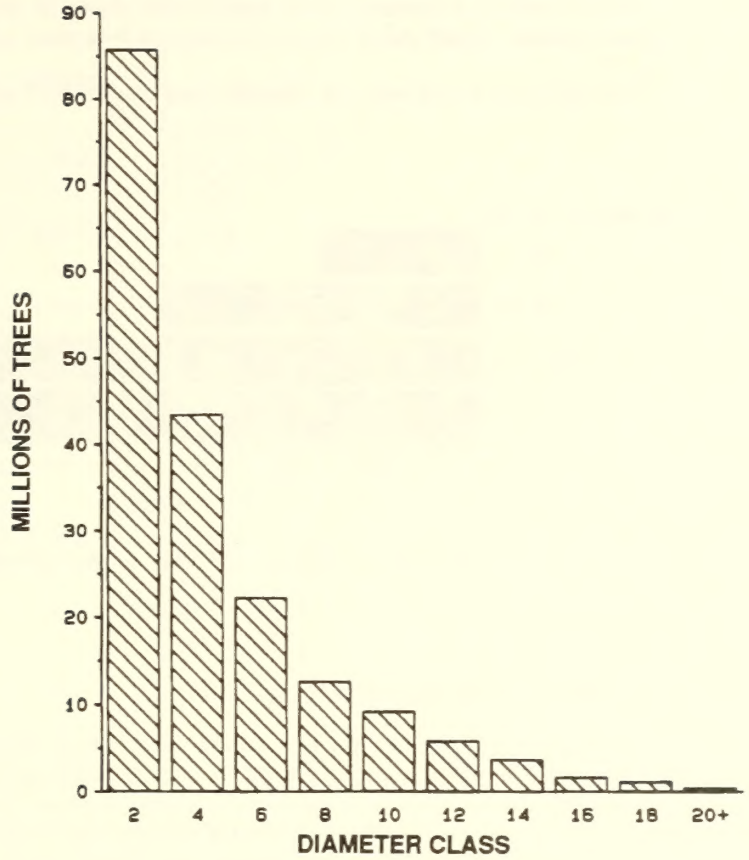

Figure 3—Number of growing-stock trees on timberland outside National Forests by diameter class in western South Dakota, 1984.

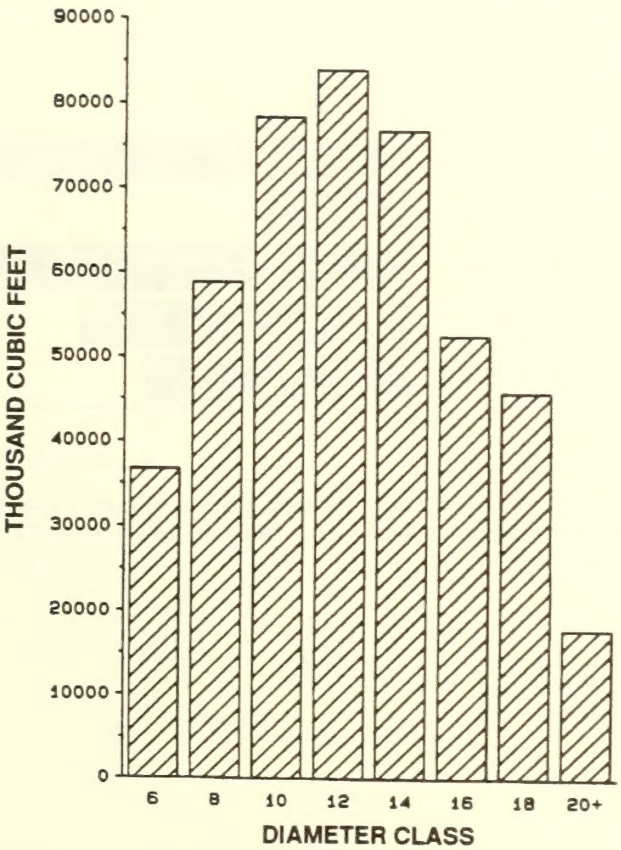

Figure 4—Net volume of growing stock on timberland outside National Forests by diameter class in western South Dakota, 1984.

Only 8 percent of timberland has stands with 10,000 or more board feet per acre (International 1/4-inch rule); 35 percent contains less than 1,500 board feet per acre (fig. 5).

Net volume of sound cull and salvable dead trees is 25.7 million cubic feet.

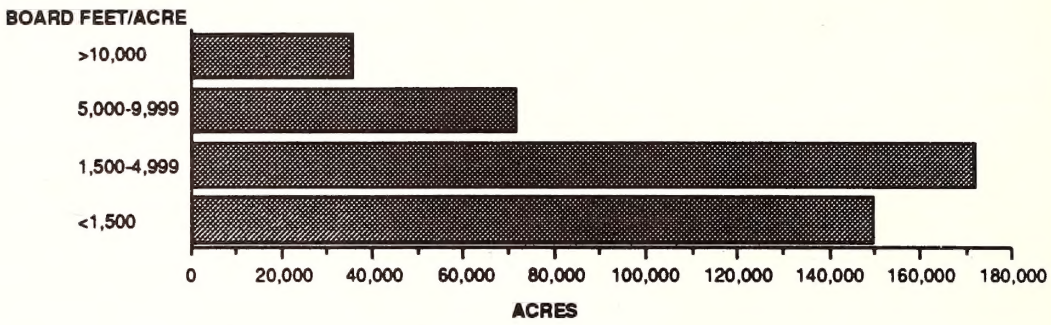

Figure 5—Area of timberland outside National Forests by stand volume class in western South Dakota, 1984.

COMPONENTS OF CHANGE

Growth

Gross growth of growing stock is annually increasing the growing stock inventory by 11.5 million cubic feet or about 2.5 percent. Mortality and removals reduce this by about 7.3 million cubic feet. The average annual net increase in growing-stock inventory is, therefore, 4.1 million cubic feet or less than 1 percent of the inventory volume (fig. 6).

The 6.0- and 8.0-inch diameter classes account for roughly 43 percent of the net annual growth (fig. 7).

Of the timberland area, 65 percent falls in the 20 to 49 cubic feet per acre per year productivity class (fig. 8). Most of the remainder has the inherent ability to produce between 50 and 85 cubic feet per acre per year.

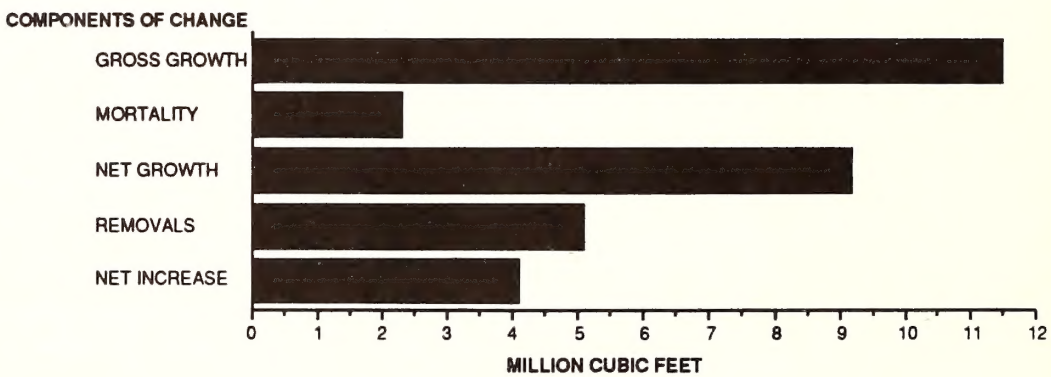

Figure 6—Gross annual growth, mortality, net annual growth, removals and net increase of the growing stock volume on timberland outside National Forests in western South Dakota, 1983.

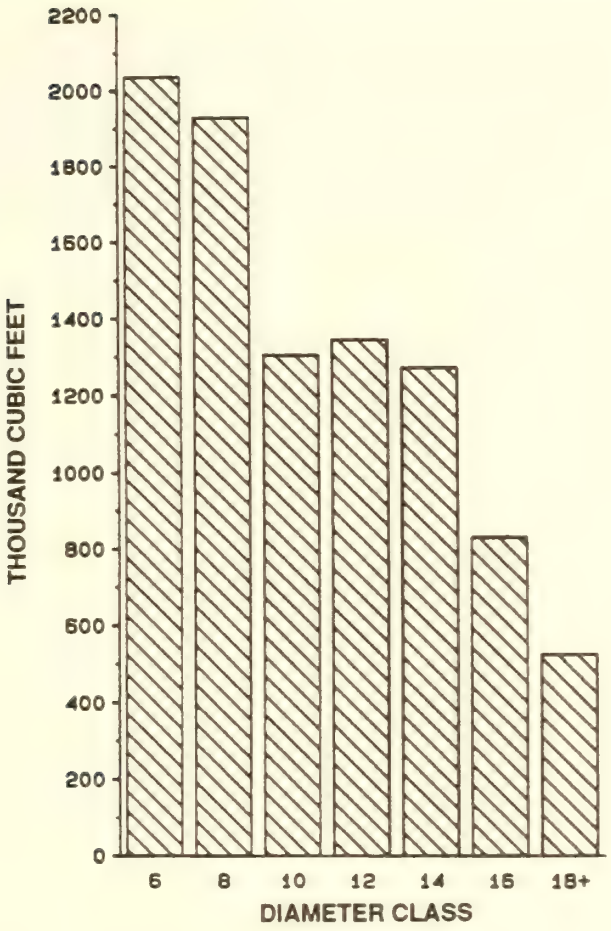

Figure 7—Net annual growth of growing stock on timberland outside National Forests by diameter class in western South Dakota, 1983.

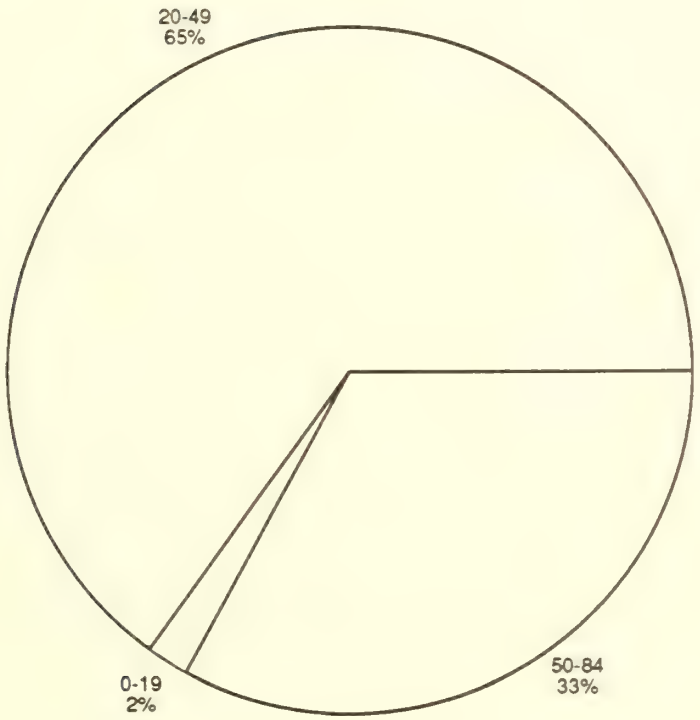

Figure 8—Distribution of timberland outside National Forests by productivity class (cubic feet per acre per year) in western South Dakota, 1984.

The average net annual growth per acre of growing stock is 22 cubic feet, half the average potential of 44 cubic feet per acre. Area condition class (table 11) gives some indication of why a large discrepancy exists between potential and actual growth. Table 11 and figure 9 show that old growth stands—class 90—account for 16 percent of timberland; stands poorly stocked with desirable trees—classes 50, 60, 70—occupy roughly three-quarters or 314,300 acres of timberland; and just over 9 percent of the timberland area is in a nonstocked condition. In other words, 98 percent of timberland is nonstocked, occupied by old growth stands, or poorly stocked with vigorous trees. These kinds of conditions contribute little to annual growth.

Mortality

Annual growing stock mortality resulted in a loss of 2.3 million cubic feet, which was 20 percent of the gross growth. More than 60 percent of this loss occurred to trees in the 10.0- and 12.0-inch diameter classes. About 66 percent of the mortality was weather related, most of which was the result of snow damage (fig. 10).

Sawtimber volume loss is estimated to be 7.8 million board feet (International 1/4-inch rule), which is 12 percent of gross sawtimber growth.

Removals

Removals from growing stock in 1983 were 5.1 million cubic feet, which is 1 percent of the net volume of growing stock and 55 percent of the net annual growth of growing stock. Sawtimber removals were 27 million board feet or 47 percent of the net annual growth of sawtimber (McLain 1987, 1988).

Privately owned lands account for 84 percent or 3.8 million cubic feet of industrial roundwood products harvested (fig. 11) (McLain 1987). Almost half of this harvest came from Lawrence County.

Fuelwood removals from growing stock were 216,000 cubic feet in 1983 and from nongrowing stock 1.7 million cubic feet, or 88 percent of the total fuelwood removals. Most of the non-growing-stock fuelwood removals came from dead trees (McLain 1988).

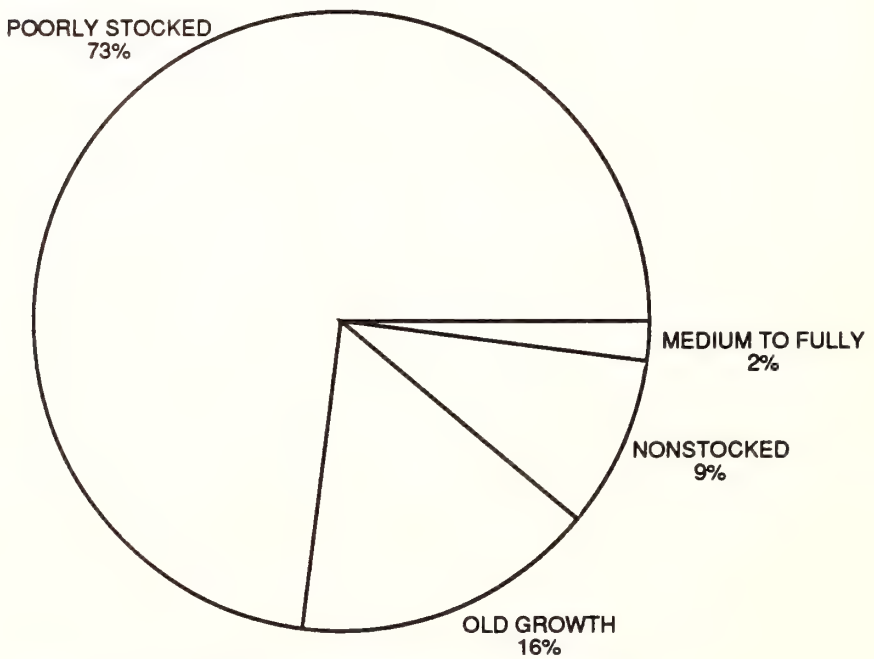

Figure 9—Distribution of timberland outside National Forests by area condition class in western South Dakota, 1984.

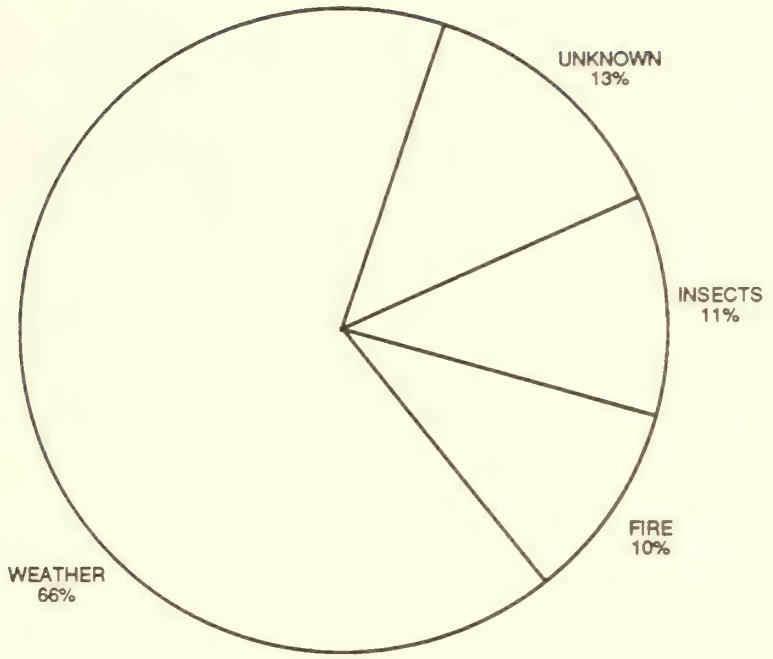

Figure 10—Distribution of annual mortality on timberland outside National Forests by cause of death in western South Dakota, 1983.

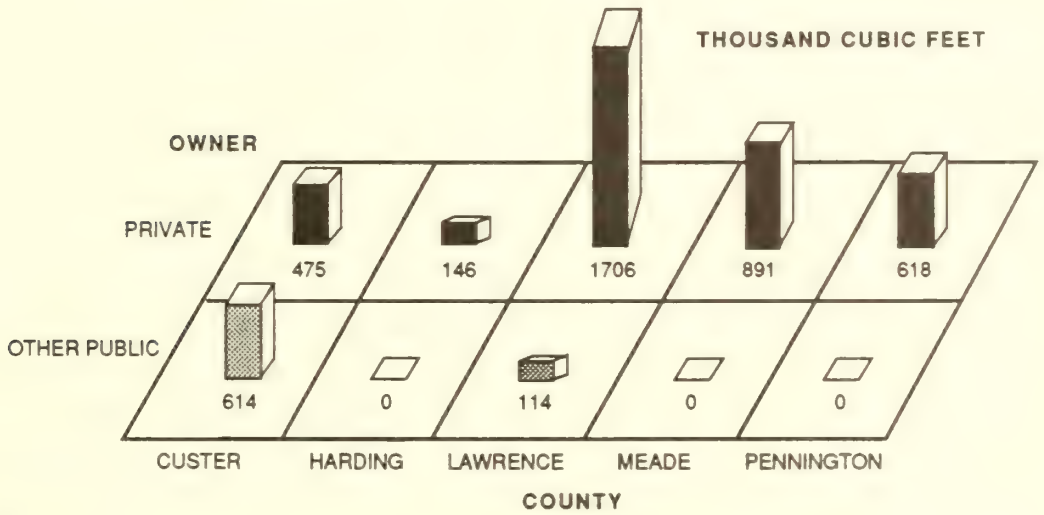

Figure 11—Cubic volume of industrial roundwood products harvested by county and owner in western South Dakota, 1983.

HOW THE INVENTORY WAS CONDUCTED

The inventory was designed to provide reliable statistics at the sample area level.

Prefield

Initial area estimates were based on the classification of 22,151 sample points systematically placed on the latest aerial photographs available. The sample points were summarized and grouped into strata for subsequent field sampling. The photo points, adjusted to meet known land areas, were used to compute area expansion factors for the field stratum means.

Field

Land classification and estimates of timber characteristics and volume were based on observations and measurements recorded at 876 ground sample locations of which 62 were forested. Sample trees for timberland were selected using a five-point cluster, which includes fixed plots ($^1/_{300}$-acre) for trees less than 5.0 inches diameter at breast height (d.b.h.) and variable plots (40 basal area factor) for trees 5.0 inches d.b.h. or larger. Sample trees for woodland were selected using a $^1/_{10}$-acre or a $^1/_{20}$-acre fixed radius plot for trees 3 inches diameter at root collar (d.r.c.) and larger. Trees less than 3 inches d.r.c. were tallied on $^1/_{100}$-acre subplots.

Compilation

All photo and field data were loaded onto tape and stored for computer editing, computation, and tabulation. Final estimates were based on statistical summaries, a portion of which is used in this report.

STANDARD FOREST SURVEY TERMINOLOGY

Acceptable trees—Growing-stock trees meeting specified standards of size and quality but not qualifying as desirable trees.

Area condition class—A classification of timberland reflecting the degree to which the site is being utilized by growing-stock trees and other conditions affecting current and prospective timber growth (see Stocking):

Class 10—Areas fully stocked with desirable trees and not overstocked.
Class 20—Areas fully stocked with desirable trees but overstocked with all live trees.
Class 30—Areas medium to fully stocked with desirable trees and with less than 30 percent of the area controlled by other trees, or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees, or both.
Class 40—Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees, or conditions that ordinarily prevent occupancy by desirable trees, or both.
Class 50—Areas poorly stocked with desirable trees but fully stocked with growing-stock trees.
Class 60—Areas poorly stocked with desirable trees but with medium to full stocking of growing-stock trees.
Class 70—Areas nonstocked or poorly stocked with desirable trees and poorly stocked with growing-stock trees.
Class 80—Low-risk old-growth stands.
Class 90—High-risk old-growth stands.
Nonstocked—Areas less than 10 percent stocked with growing-stock trees.

Basal area—The cross-sectional area of a tree expressed in square feet. For timber species the calculation is based on diameter at breast height (d.b.h.); for woodland species it is based on diameter at root collar (d.r.c.).

Christmas tree grade—Pinyon species are classified as Christmas trees using the following guidelines:

Premium—Excellent conical form with no gaps in branches and a straight bole.
Standard—Good conical form with small gaps in branches and bole slightly malformed.
Utility—Conical in form with branches missing and bole bent or malformed.
Cull—Not meeting one of the above classifications or over 12 feet in height.

Cord—A pile of stacked wood equivalent to 128 cubic feet of wood and air space having standard dimensions of 4 by 4 by 8 feet.

Cull trees—Live trees that are unmerchantable now or prospectively (see Rough tree and Rotten tree).

Cull volume—Portions of a tree's volume that are not usable for wood products because of rot, missing or dead material, or other cubic-foot defect.

Deferred forest land—Forest lands within the National Forest System that are under study for possible inclusion in the Wilderness System.

Desirable trees—Growing-stock trees (1) having no serious defect in quality to limit present or prospective use for timber products, (2) of relatively high vigor, and (3) containing no pathogens that may result in death or serious deterioration within the next decade.

Diameter at breast height (d.b.h.)—Diameter of the stem measured at 4.5 feet above the ground.

Diameter at root collar (d.r.c.)—Diameter equivalent at the point nearest the ground line that represents the basal area of the tree stem or stems.

Diameter classes—Tree diameters, either d.b.h. or d.r.c., grouped into 2-inch classes labeled by the midpoint of the class.

Farmer/rancher-owned lands—Lands owned by a person who operates a farm or a ranch and who either does the work or directly supervises the work.

Forest industry lands—Lands owned by companies or individuals operating a primary wood-processing plant.

Forest lands—Lands at least 10 percent stocked by forest trees of any size, including lands that formerly had such tree cover and that will be naturally or artificially regenerated. The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width at least 120 feet wide to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if less than 120 feet wide.

Forest trees—Woody plants having a well-developed stem or stems, usually more than 12 feet in height at maturity, with a generally well-defined crown.

Forest type—A classification of forest land based upon and named for the tree species presently forming a plurality of live-tree stocking.

Gross annual growth—The average annual increase in the net volume of trees during a specified period.

Growing-stock trees—Live sawtimber trees, poletimber trees, saplings, and seedlings of timber species meeting specified standards of quality and vigor; excludes cull trees.

Growing-stock volume—Net cubic-foot volume in live poletimber-size and sawtimber-size growing-stock trees from a 1-foot stump to a minimum 4-inch top (of central stem) outside bark or to the point where the central stem breaks into limbs.

Growth—See definition for Net annual growth.

Hardwood trees—Dicotyledonous trees, usually broad-leaved and deciduous.

High-risk old-growth stands—Timber stands over 100 years old in which the majority of the trees are not expected to survive more than 10 years.

Indian lands—Indian lands held in trust by the Federal Government.

Industrial wood—All commercial roundwood products except fuelwood.

Land area—The area of dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains, streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre in size.

Logging residues—The unused portions of growing-stock trees cut or killed by logging.

Low-risk old-growth stands—Timber stands over 100 years old in which the majority of the trees are expected to survive more than 10 years.

Miscellaneous Federal lands—Lands administered by Federal agencies other than the Forest Service, U.S. Department of Agriculture, or Bureau of Land Management, U.S. Department of the Interior.

Mortality—The net volume of growing-stock trees that have died from natural causes during a specified period.

National Forest lands—Public lands administered by the Forest Service, U.S. Department of Agriculture.

National Resource lands—Public lands administered by the Bureau of Land Management, U.S. Department of the Interior.

Net annual growth—Gross annual growth minus average annual mortality.

Net dead volume—Total net volume of dead trees plus the net volume of dead material in live trees.

Net volume in board feet—The gross board-foot volume in the sawlog portion of growing-stock trees, less deductions for cull volume.

Net volume in cubic feet—Gross cubic-foot volume in the merchantable portion of trees less deductions for cull volume. For timber species, volume is computed for the merchantable stem from a 1-foot stump to a minimum 4.0-inch top diameter outside bark (d.o.b.), or to the point where the central stem breaks into limbs. For woodland species, volume is computed outside bark (o.b.) for all woody material above d.r.c. that is larger than 1.5 inches d.o.b.

Nonforest lands—Lands that do not currently qualify as forest land.

Nonindustrial private—All private ownerships except forest industry.

Nonstocked areas—Forest land less than 10 percent stocked with live trees.

Old-growth stands—Stands of timber species over 100 years old.

Other private lands—Privately owned lands other than forest industry or farmer-owned.

Other public lands—Public lands administered by agencies other than the Forest Service, U.S. Department of Agriculture.

Other removals—The net volume of growing-stock trees removed from the inventory by cultural operations such as timber-stand improvement, by land clearing, and by changes in land use, such as a shift to wilderness.

Poletimber stands—Stands at least 10 percent stocked with growing-stock trees, in which half or more of the stocking is sawtimber or poletimber trees or both, with poletimber stocking exceeding that of sawtimber (see definition for Stocking).

Poletimber trees—Live trees of timber species at least 5 inches d.b.h. but smaller than sawtimber size.

Posts—Juniper and oak species are evaluated for post potential using the following criteria:

Line post—A 7-foot minimum length with 5.0 to 7.0 inches diameter at the butt, 2.5-inch minimum small end diameter, and reasonably straight and solid.

Corner post—An 8-foot minimum length with 7.0 to 9.0 inches diameter at the butt, 2.5-inch minimum small end diameter, and reasonably straight and solid.

Potential growth—The average net annual cubic-foot growth per acre at culmination of mean annual growth attainable in fully stocked natural stands.

Primary wood-processing plants—Plants using roundwood products such as sawlogs, pulpwood bolts, veneer logs, and so forth.

Productivity class—A classification of forest land that reflects biological potential. For timberlands, the index used is the potential net annual growth at culmination of mean annual increment in fully stocked natural stands. For woodland, characteristics that affect the land's ability to produce wood, such as soil depth and aspect, are used. Furthermore, woodland is classified as high site where sustained wood production is likely, or low site where the continuous production of wood is unlikely.

Removals—The net volume of growing-stock trees removed from the inventory by harvesting, cultural operations, land clearings, or changes in land use.

Reserved forest land—Forest land withdrawn from tree utilization through statute or administrative designation.

Residues:

Coarse residues—Plant residues suitable for chipping, such as slabs, edgings, and ends.
Fine residues—Plant residues not suitable for chipping, such as sawdust, shavings, and veneer clippings.
Plant residues—Wood materials from primary manufacturing plants that are not used for any product.

Rotten trees—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with more than half of the cull volume attributable to rotten or missing material.

Rough trees—Live poletimber or sawtimber trees with more than 67 percent of their total volume cull (cubic-foot) and with less than half of the cull volume attributable to rotten or missing material.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing or down dead trees that are currently merchantable by regional standards.

Saplings—Live trees of timber species 1 to 4.9 inches d.b.h. or woodland species 1 to 2.9 inches d.r.c.

Sapling and seedling stands—Timberland stands at least 10 percent stocked on which more than half of the stocking is saplings or seedlings or both.

Sawlog portion—That part of the bole of sawtimber trees between a 1-foot stump and the sawlog top.

Sawlog top—The point on the bole of sawtimber trees above which a sawlog cannot be produced. The minimum sawlog top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

Sawtimber stands—Stands at least 10 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Sawtimber trees—Live trees of timber species meeting regional size and defect specifications. Softwood trees must be at least 9 inches d.b.h. and hardwood trees 11 inches d.b.h.

Sawtimber volume—Net volume in board feet of the sawlog portion of live sawtimber trees.

Seedlings—Established live trees of timber species less than 1 inch d.b.h. or woodland species less than 1 inch d.r.c.

Softwood trees—Monocotyledonous trees, usually evergreen, having needle or scalelike leaves.

Standard error—An expression of the degree of confidence that can be placed on an estimated total or average obtained by statistical sampling methods. Standard errors do not include technique errors that could occur in photo classification of areas, field measurements, or compilation of data.

Stand-size classes—A classification of forest land based on the predominant size of trees present (see Sawtimber stands, Poletimber stands, and Sapling and seedling stands).

State, county, and municipal lands—Lands administered by States, counties, and local public agencies, or lands leased by these governmental units for more than 50 years.

Stocking—An expression of the extent to which growing space is effectively utilized by present or potential growing-stock trees of timber species.

Timberland—Forest land where timber species make up at least 10 percent stocking.

Timber species—Tree species traditionally used for industrial wood products. In western South Dakota these include aspen and cottonwood hardwood species and all softwood species except pinyon and juniper. In eastern South Dakota these include all hardwood and softwood species tallied.

Timber stand improvement—Treatments such as thinning, pruning, release cutting, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Upper-stem portion—That part of the main stem or fork of sawtimber trees above the sawlog top to a minimum top diameter of 4 inches outside bark or to the point where the main stem or fork breaks into limbs.

Water—Streams, sloughs, estuaries, and canals more than 120 feet wide, and lakes, reservoirs, and ponds more than 1 acre in size at mean high water level.

Wilderness—An area of undeveloped land currently included in the Wilderness System, managed so as to preserve its natural conditions and retain its primeval character and influence.

Woodland—Forest land where timber species make up less than 10 percent stocking.

Woodland species—Tree species not usually converted into industrial wood products. Common uses are fuelwood, fenceposts, and Christmas trees.

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FOREST SURVEY TABLES

Table 1--Total land and water area by ownership class in western South Dakota, 1984

Ownership class	Area
	- - Acres - -
Land:	
Public:	
National Forest	1,388,186
Other public:	
National Parks	30,845
Bureau of Land Management	202,390
Miscellaneous Federal	19,500
State	489,520
Total other public	742,255
Total public	2,130,441
Private[1]	4,740,995
Total land area	6,871,436
Census water	18,502
Total land and water[2]	6,889,938

[1]On this table and all tables that follow, forest industry has been included with private to avoid disclosure of an individual owner.

[2]U.S. Bureau of the Census, land and water area of the United States, 1980.

Table 2--Area of forest land outside National Forests with percent standard error in western South Dakota, 1984

	Softwoods		Hardwoods		All types	
	Acres	Percent standard error	Acres	Percent standard error	Acres	Percent standard error
Timberland	402,755	± 5.8	24,542	±59.2	427,297	± 4.4
Woodland	--	--	17,427	±60.0	17,427	±60.0
Reserved forest land:[1]						
Timberland	8,605		--		8,605	
Woodland	1,020		255		1,275	
Total forest land[2]	412,380		42,224		454,604	

[1]Reserved land areas are estimated from aerial photos without field verification; therefore, standard errors are not calculated.
[2]On this and all following tables, totals may vary due to rounding.

Table 3--Net volume, net annual growth, and annual mortality of growing stock and sawtimber on timberland outside National Forests with percent standard error in western South Dakota

	Softwoods		Hardwoods		All types	
	Volume	Percent standard error	Volume	Percent standard error	Volume	Percent standard error
Net volume, 1984:						
Growing stock (M cubic feet)	433,081	±11.2	17,640	±56.7	450,721	±10.6
Sawtimber[1] (M board feet)	1,535,685	±13.4	59,417	±74.3	1,595,102	±12.9
Sawtimber[2] (M board feet)	1,268,280	±13.6	49,984	±74.4	1,318,264	±13.1
Net annual growth, 1983:						
Growing stock (M cubic feet)	8,918	±17.8	321	±43.9	9,239	±17.0
Sawtimber[1] (M board feet)	53,634	±21.2	3,588	±85.8	57,222	±20.2
Sawtimber[2] (M board feet)	42,232	±21.1	3,155	±85.0	45,387	±20.1
Annual mortality, 1983:						
Growing stock (M cubic feet)	2,258	±43.9	--	--	2,258	±43.9
Sawtimber[1] (M board feet)	7,808	±41.5	--	--	7,808	±41.5
Sawtimber[2] (M board feet)	6,661	±41.4	--	--	6,661	±41.4

[1]International ¼-inch rule.
[2]Scribner rule.

Table 4--Total land area outside National Forests by major land class and ownership class in western South Dakota, 1984

Land class	Ownership class		
	Other public	Private	Total
	Acres		
Timberland:			
Reserved	8,605	--	8,605
Nonreserved	85,161	342,136	427,297
Total	93,766	342,136	435,902
Woodland:			
Reserved	1,275	--	1,275
Nonreserved	424	17,003	17,427
Total	1,699	17,003	18,702
Total forest land:			
Reserved	9,880	--	9,880
Nonreserved	85,585	359,139	444,724
Total	95,465	359,139	454,604
Nonforest land	646,790	4,381,856	5,028,646
Total land area	742,255	4,740,995	5,483,250

Table 5--Area of forest land outside National Forests by forest type, ownership class, and land class in western South Dakota, 1984

Forest type	Ownership class and land class						Total
	Other public[1]		Private		All owners		
	Reserved	Nonreserved	Reserved	Nonreserved	Reserved	Nonreserved	
	Acres						
Ponderosa pine	8,605	82,667	--	313,779	8,605	396,446	405,051
Spruce-fir	--	248	--	6,061	--	6,309	6,309
Aspen	--	248	--	6,060	--	6,308	6,308
Cottonwood	--	1,998	--	16,236	--	18,234	18,234
Total timberland	8,605	85,161	--	342,136	8,605	427,297	435,902
Juniper	1,020	--	--	--	1,020	--	1,020
Oak	255	424	--	17,003	255	17,427	17,682
Total woodland	1,275	424	--	17,003	1,275	17,427	18,702
All types	9,880	85,585	--	359,139	9,880	444,724	454,604

[1]Includes National Parks (reserved).

Table 6--Cubic feet of net volume, net annual growth, and annual mortality in trees on forest land outside National Forests by species and ownership class in western South Dakota

Species	Ownership class		
	Other public	Private	Total
	Thousand cubic feet		
Net volume, 1984:			
Ponderosa pine	96,210	334,276	430,486
White spruce	79	2,515	2,594
Aspen	247	6,387	6,634
Cottonwood	1,597	9,410	11,007
Total timberland species	98,133	352,588	450,721
Juniper	301	1,223	1,524
Woodland hardwoods	1,520	15,289	16,809
Total woodland species	1,821	16,512	18,333
Total all species	99,954	369,100	469,054
Net annual growth, 1983:			
Ponderosa pine	2,136	7,050	9,186
White spruce	-10	-259	-269
Aspen	7	192	199
Cottonwood	16	105	121
Total timberland species	2,149	7,088	9,237
Juniper	9	218	227
Woodland hardwoods	50	366	416
Total woodland species	59	584	643
Total all species	2,208	7,672	9,880
Annual mortality, 1983:			
Ponderosa pine	64	1,862	1,926
White spruce	12	320	332
Aspen	--	--	--
Cottonwood	--	--	--
Total timberland species	76	2,182	2,258
Juniper	--	--	--
Woodland hardwoods	--	--	--
Total woodland species	--	--	--
Total all species	76	2,182	2,258

NOTE: Tables 6 through 26 include nonreserved lands.

Table 7--Area of timberland outside National Forests by forest type, stand-size class, and productivity class in western South Dakota, 1984

Forest type and stand-size class	Productivity class			Total acres
	50-84	20-49	0-19	
	Acres			
Ponderosa pine:				
Sawtimber	86,014	145,361	10,728	242,103
Poletimber	33,938	39,616	--	73,554
Sapling and seedling	13,814	42,177	--	55,991
Nonstocked	--	24,798	--	24,798
Total	133,766	251,952	10,728	396,446
Spruce-fir:				
Sawtimber	--	--	--	--
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	6,309	--	--	6,309
Total	6,309	--	--	6,309
Aspen:				
Sawtimber	--	--	--	--
Poletimber	--	6,308	--	6,308
Sapling and seedling	--	--	--	--
Nonstocked	--	--	--	--
Total	--	6,308	--	6,308
Cottonwood:				
Sawtimber	--	10,729	--	10,729
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	--	7,505	--	7,505
Total	--	18,234	--	18,234
All types:				
Sawtimber	86,014	156,090	10,728	252,832
Poletimber	33,938	45,924	--	79,862
Sapling and seedling	13,814	42,177	--	55,991
Nonstocked	6,309	32,303	--	38,612
Total	140,075	276,494	10,728	427,297

Table 8--Area of other publicly owned timberland by forest type, stand-size class, and productivity class in western South Dakota, 1984

Forest type and stand-size class	Productivity class			Total acres
	50-84	20-49	0-19	
	- - - - - - - - - - - - Acres - - - - - - - - - - - -			
Ponderosa pine:				
Sawtimber	16,876	30,601	1,821	49,298
Poletimber	1,097	14,975	--	16,072
Sapling and seedling	424	15,748	--	16,172
Nonstocked	--	1,125	--	1,125
Total	18,397	62,449	1,821	82,667
Spruce-fir:				
Sawtimber	--	--	--	--
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	248	--	--	248
Total	248	--	--	248
Aspen:				
Sawtimber	--	--	--	--
Poletimber	--	248	--	248
Sapling and seedling	--	--	--	--
Nonstocked	--	--	--	--
Total	--	248	--	248
Cottonwood:				
Sawtimber	--	1,822	--	1,822
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	--	176	--	176
Total	--	1,998	--	1,998
All types:				
Sawtimber	16,876	32,423	1,821	51,120
Poletimber	1,097	15,223	--	16,320
Sapling and seedling	424	15,748	--	16,172
Nonstocked	248	1,301	--	1,549
Total	18,645	64,695	1,821	85,161

Table 9--Area of privately owned timberland by forest type, stand-size class, and productivity class in western South Dakota, 1984

Forest type and stand-size class	Productivity class			Total acres
	50-84	20-49	0-19	
	Acres			
Ponderosa pine:				
Sawtimber	69,138	114,760	8,907	192,805
Poletimber	32,841	24,641	--	57,482
Sapling and seedling	13,390	26,429	--	39,819
Nonstocked	--	23,673	--	23,673
Total	115,369	189,503	8,907	313,779
Spruce-fir:				
Sawtimber	--	--	--	--
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	6,061	--	--	6,061
Total	6,061	--	--	6,061
Aspen:				
Sawtimber	--	--	--	--
Poletimber	--	6,060	--	6,060
Sapling and seedling	--	--	--	--
Nonstocked	--	--	--	--
Total	--	6,060	--	6,060
Cottonwood:				
Sawtimber	--	8,907	--	8,907
Poletimber	--	--	--	--
Sapling and seedling	--	--	--	--
Nonstocked	--	7,329	--	7,329
Total	--	16,236	--	16,236
All types:				
Sawtimber	69,138	123,667	8,907	201,712
Poletimber	32,841	30,701	--	63,542
Sapling and seedling	13,390	26,429	--	39,819
Nonstocked	6,061	31,002	--	37,063
Total	121,430	211,799	8,907	342,136

Table 10--Area of timberland outside National Forests by stand volume and ownership class in western South Dakota, 1984

Stand volume per acre[1]	Ownership class		Total
	Other public	Private	
	Acres		
Less than 1,500 board feet	17,634	131,652	149,286
1,500 to 4,999 board feet	37,818	134,016	171,834
5,000 to 9,999 board feet	22,605	48,418	71,023
10,000 board feet or more	7,104	28,050	35,154
All classes	85,161	342,136	427,297

[1]International ¼-inch rule.

Table 11--Area of timberland outside National Forests by forest type and area condition class in western South Dakota, 1984

Forest type	Area condition class										
	10	20	30	40	50	60	70	80	90	Nonstocked	All classes
	Acres										
Ponderosa pine	--	--	--	6,329	78,643	152,639	76,714	--	57,323	24,798	396,446
Spruce-fir	--	--	--	--	--	--	--	--	--	6,309	6,309
Aspen	--	--	--	--	--	--	6,308	--	--	--	6,308
Cottonwood	--	--	--	--	--	--	--	--	10,729	7,505	18,234
All types	--	--	--	6,329	78,643	152,639	83,022	--	68,052	38,612	427,297

Table 12--Number of growing-stock trees on timberland outside National Forests by species and diameter class in western South Dakota, 1984

Species	Diameter class (inches at breast height)															
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	Thousand trees															
Ponderosa pine	85,677	43,429	21,232	12,420	8,802	5,679	3,236	1,558	997	182	19	19	--	26	--	183,276
White spruce	--	--	--	--	--	66	--	41	--	--	--	--	--	--	--	107
Total softwoods	85,677	43,429	21,232	12,420	8,802	5,745	3,236	1,599	997	182	19	19	--	26	--	183,383
Aspen	--	--	1,021	160	389	76	44	--	--	--	--	--	--	--	--	1,690
Cottonwood	--	--	--	--	--	--	354	--	149	43	93	--	--	--	--	639
Total hardwoods	--	--	1,021	160	389	76	398	--	149	43	93	--	--	--	--	2,329
All species	85,677	43,429	22,253	12,580	9,191	5,821	3,634	1,599	1,146	225	112	19	--	26	--	185,712

Table 13--Number of cull and salvable dead trees on timberland outside National Forests by ownership class, and softwoods and hardwoods in western South Dakota, 1984

Ownership class and species group	Cull trees			Salvable dead trees	Total
	Rough	Rotten	Total		
	- - - - - - - - - - Thousand trees - - - - - - - - - -				
Other public:					
Softwoods	--	--	--	359	359
Hardwoods	13	3	16	32	48
Total	13	3	16	391	407
Private:					
Softwoods	--	--	--	4,282	4,282
Hardwoods	68	97	165	1,094	1,259
Total	68	97	165	5,376	5,541
All owners:					
Softwoods	--	--	--	4,641	4,641
Hardwoods	81	100	181	1,126	1,307
Total	81	100	181	5,767	5,948

Table 14--Net volume of growing stock on timberland outside National Forests by ownership class, forest type, and stand-size class in western South Dakota, 1984

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	
		Thousand cubic feet				
Other public:						
	Ponderosa pine	71,957	12,937	11,404	59	96,357
	Spruce-fir	--	--	--	46	46
	Aspen	--	163	--	--	163
	Cottonwood	1,539	--	--	28	1,567
	All types	73,496	13,100	11,404	133	98,133
Private:						
	Ponderosa pine	253,921	57,206	24,566	3,108	338,801
	Spruce-fir	--	--	--	1,131	1,131
	Aspen	--	3,980	--	--	3,980
	Cottonwood	7,526	--	--	1,150	8,676
	All types	261,447	61,186	24,566	5,389	352,588
All owners:						
	Ponderosa pine	325,878	70,143	35,970	3,167	435,158
	Spruce-fir	--	--	--	1,177	1,177
	Aspen	--	4,143	--	--	4,143
	Cottonwood	9,065	--	--	1,178	10,243
	All types	334,943	74,286	35,970	5,522	450,721

Table 15--Net volume of sawtimber (International ¼-inch rule) on timberland outside National Forests by ownership class, forest type, and stand-size class in western South Dakota, 1984

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	
		Thousand board feet, International ¼-inch rule				
Other public:						
	Ponderosa pine	297,861	27,232	37,524	307	362,924
	Spruce-fir	--	--	--	215	215
	Aspen	--	278	--	--	278
	Cottonwood	7,316	--	--	135	7,451
	All types	305,177	27,510	37,524	657	370,868
Private:						
	Ponderosa pine	974,087	117,124	65,449	14,118	1,170,778
	Spruce-fir	--	--	--	5,261	5,261
	Aspen	--	6,801	--	--	6,801
	Cottonwood	35,770	--	--	5,624	41,394
	All types	1,009,857	123,925	65,449	25,003	1,224,234
All owners:						
	Ponderosa pine	1,271,948	144,356	102,973	14,425	1,533,702
	Spruce-fir	--	--	--	5,476	5,476
	Aspen	--	7,079	--	--	7,079
	Cottonwood	43,086	--	--	5,759	48,845
	All types	1,315,034	151,435	102,973	25,660	1,595,102

Table 16--Net volume of sawtimber (Scribner rule) on timberland outside National Forests by ownership class, forest type, and stand-size class in western South Dakota, 1984

Ownership class	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/ seedling	Nonstocked	
		Thousand board feet, Scribner rule				
Other public:						
	Ponderosa pine	247,822	22,376	30,051	250	300,499
	Spruce-fir	--	--	--	182	182
	Aspen	--	240	--	--	240
	Cottonwood	6,159	--	--	106	6,265
	All types	253,981	22,616	30,051	538	307,186
Private:						
	Ponderosa pine	803,899	96,717	54,026	11,577	966,219
	Spruce-fir	--	--	--	4,449	4,449
	Aspen	--	5,858	--	--	5,858
	Cottonwood	30,114	--	--	4,438	34,552
	All types	834,013	102,575	54,026	20,464	1,011,078
All owners:						
	Ponderosa pine	1,051,721	119,093	84,077	11,827	1,266,718
	Spruce-fir	--	--	--	4,631	4,631
	Aspen	--	6,098	--	--	6,098
	Cottonwood	36,273	--	--	4,544	40,817
	All types	1,087,994	125,191	84,077	21,002	1,318,264

Table 17--Net volume of growing stock and sawtimber on timberland outside National Forests by species and ownership class in western South Dakota, 1984

Species	Ownership class		
	Other public	Private	Total
	GROWING STOCK		
	Thousand cubic feet		
Ponderosa pine	96,210	334,276	430,486
White spruce	80	2,515	2,595
Total softwoods	96,290	336,791	433,081
Aspen	246	6,387	6,633
Cottonwood	1,597	9,410	11,007
Total hardwoods	1,843	15,797	17,640
All species	98,133	352,588	450,721
	SAWTIMBER		
	Thousand board feet, International ¼-inch rule		
Ponderosa pine	362,622	1,160,574	1,523,196
White spruce	380	12,109	12,489
Total softwoods	363,002	1,172,683	1,535,685
Aspen	278	6,801	7,079
Cottonwood	7,588	44,750	52,338
Total hardwoods	7,866	51,551	59,417
All species	370,868	1,224,234	1,595,102
	SAWTIMBER		
	Thousand board feet, Scribner rule		
Ponderosa pine	300,244	957,700	1,257,944
White spruce	316	10,020	10,336
Total softwoods	300,560	967,720	1,268,280
Aspen	240	5,858	6,098
Cottonwood	6,386	37,500	43,886
Total hardwoods	6,626	43,358	49,984
All species	307,186	1,011,078	1,318,264

Table 18--Net volume of growing stock and sawtimber on timberland outside National Forests by species and diameter class in western South Dakota, 1984

Species	Diameter class (inches at breast height)													All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	GROWING STOCK													
	Thousand cubic feet													
Ponderosa pine	35,792	58,079	74,941	81,989	71,831	51,071	42,617	8,835	1,174	1,242	--	2,915	--	430,486
White spruce	--	--	--	1,177	--	1,418	--	--	--	--	--	--	--	2,595
Total softwoods	35,792	58,079	74,941	83,166	71,831	52,489	42,617	8,835	1,174	1,242	--	2,915	--	433,081
Aspen	901	768	3,387	737	840	--	--	--	--	--	--	--	--	6,633
Cottonwood	--	--	--	--	4,099	--	3,185	735	2,988	--	--	--	--	11,007
Total hardwoods	901	768	3,387	737	4,939	--	3,185	735	2,988	--	--	--	--	17,640
All species	36,693	58,847	78,328	83,903	76,770	52,489	45,802	9,570	4,162	1,242	--	2,915	--	450,721
	SAWTIMBER													
	Thousand board feet, International ¼-inch rule													
Ponderosa pine	XXXXX	XXXXX	234,541	335,831	348,472	276,412	243,913	51,442	7,015	7,442	--	18,128	--	1,523,196
White spruce	XXXXX	XXXXX	--	5,476	--	7,013	--	--	--	--	--	--	--	12,489
Total softwoods	XXXXX	XXXXX	234,541	341,307	348,472	283,425	243,913	51,442	7,015	7,442	--	18,128	--	1,535,685
Aspen	XXXXX	XXXXX	XXXXX	3,009	4,070	--	--	--	--	--	--	--	--	7,079
Cottonwood	XXXXX	XXXXX	XXXXX	--	20,152	--	15,153	3,393	13,640	--	--	--	--	52,338
Total hardwoods	XXXXX	XXXXX	XXXXX	3,009	24,222	--	15,153	3,393	13,640	--	--	--	--	59,417
All species	XXXXX	XXXXX	234,541	344,316	372,694	283,425	259,066	54,835	20,655	7,442	--	18,128	--	1,595,102
	SAWTIMBER													
	Thousand board feet, Scribner rule													
Ponderosa pine	XXXXX	XXXXX	176,519	283,814	292,128	227,056	205,436	44,059	6,183	6,615	--	16,134	--	1,257,944
White spruce	XXXXX	XXXXX	--	4,631	--	5,705	--	--	--	--	--	--	--	10,336
Total softwoods	XXXXX	XXXXX	176,519	288,445	292,128	232,761	205,436	44,059	6,183	6,615	--	16,134	--	1,268,280
Aspen	XXXXX	XXXXX	XXXXX	2,620	3,478	--	--	--	--	--	--	--	--	6,098
Cottonwood	XXXXX	XXXXX	XXXXX	--	16,110	--	12,970	2,869	11,937	--	--	--	--	43,886
Total hardwoods	XXXXX	XXXXX	XXXXX	2,620	19,588	--	12,970	2,869	11,937	--	--	--	--	49,984
All species	XXXXX	XXXXX	176,519	291,065	311,716	232,761	218,406	46,928	18,120	6,615	--	16,134	--	1,318,264

Table 19--Net volume of timber on timberland outside National Forests by class of timber, and softwoods and hardwoods in western South Dakota, 1984

Class of timber	Softwoods	Hardwoods	All classes
	Thousand cubic feet		
Sawtimber trees:			
Sawlog portion	284,583	9,670	294,253
Upper-stem portion	54,627	2,913	57,540
Total	339,210	12,583	351,793
Poletimber trees	93,871	5,057	98,928
All growing-stock trees	433,081	17,640	450,721
Rough cull trees	--	897	897
Rotten cull trees	--	144	144
Salvable dead trees	23,381	1,505	24,886
All timber	456,462	20,186	476,648

Table 20--Net volume of growing stock and sawtimber on timberland outside National Forests by forest type and species in western South Dakota, 1984

Forest type	Species						
	Ponderosa pine	White spruce	Total softwoods	Aspen	Cotton-wood	Total hardwoods	All species
	GROWING STOCK						
	Thousand cubic feet						
Ponderosa pine	429,585	1,418	431,003	3,391	764	4,155	435,158
Spruce-fir	--	1,177	1,177	--	--	--	1,177
Aspen	901	--	901	3,242	--	3,242	4,143
Cottonwood	--	--	--	--	10,243	10,243	10,243
All types	430,486	2,595	433,081	6,633	11,007	17,640	450,721
	SAWTIMBER						
	Thousand board feet, International ¼-inch rule						
Ponderosa pine	1,523,196	7,013	1,530,209	--	3,493	3,493	1,533,702
Spruce-fir	--	5,476	5,476	--	--	--	5,476
Aspen	--	--	--	7,079	--	7,079	7,079
Cottonwood	--	--	--	--	48,845	48,845	48,845
All types	1,523,196	12,489	1,535,685	7,079	52,338	59,417	1,595,102
	SAWTIMBER						
	Thousand board feet, Scribner rule						
Ponderosa pine	1,257,944	5,705	1,263,649	--	3,069	3,069	1,266,718
Spruce-fir	--	4,631	4,631	--	--	--	4,631
Aspen	--	--	--	6,098	--	6,098	6,098
Cottonwood	--	--	--	--	40,817	40,817	40,817
All types	1,257,944	10,336	1,268,280	6,098	43,886	49,984	1,318,264

Table 21--Net annual growth of growing stock and sawtimber on timberland outside National Forests by species and ownership class in western South Dakota, 1983

Species	Ownership class		Total
	Other public	Private	
	GROWING STOCK		
	Thousand cubic feet		
Ponderosa pine	2,137	7,049	9,186
White spruce	-10	-258	-268
Total softwoods	2,127	6,791	8,918
Aspen	7	192	199
Cottonwood	16	106	122
Total hardwoods	23	298	321
All species	2,150	7,089	9,239
	SAWTIMBER		
	Thousand board feet, International ¼-inch rule		
Ponderosa pine	12,638	41,836	54,474
White spruce	-36	-804	-840
Total softwoods	12,602	41,032	53,634
Aspen	120	2,931	3,051
Cottonwood	71	466	537
Total hardwoods	191	3,397	3,588
All species	12,793	44,429	57,222
	SAWTIMBER		
	Thousand board feet, Scribner rule		
Ponderosa pine	9,884	33,060	42,944
White spruce	-30	-682	-712
Total softwoods	9,854	32,378	42,232
Aspen	104	2,551	2,655
Cottonwood	66	434	500
Total hardwoods	170	2,985	3,155
All species	10,024	35,363	45,387

Table 22--Net annual growth of growing stock and sawtimber on timberland outside National Forests by species and diameter class in western South Dakota, 1983

Species	Diameter class (inches at breast height)													All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	GROWING STOCK Thousand cubic feet													
Ponderosa pine	2,065	1,909	1,209	1,305	1,449	789	535	-97	4	12	--	6	--	9,186
White spruce	-88	--	--	23	-243	40	--	--	--	--	--	--	--	-268
Total softwoods	1,977	1,909	1,209	1,328	1,206	829	535	-97	4	12	--	6	--	8,918
Aspen	59	20	96	17	7	--	--	--	--	--	--	--	--	199
Cottonwood	--	--	--	--	58	--	31	4	29	--	--	--	--	122
Total hardwoods	59	20	96	17	65	--	31	4	29	--	--	--	--	321
All species	2,036	1,929	1,305	1,345	1,271	829	566	-93	33	12	--	6	--	9,239
	SAWTIMBER Thousand board feet, International ¼-inch rule													
Ponderosa pine	XXXXX	XXXXX	28,224	8,649	9,039	5,268	3,584	-434	28	76	--	40	--	54,474
White spruce	XXXXX	XXXXX	--	125	-1,175	210	--	--	--	--	--	--	--	-840
Total softwoods	XXXXX	XXXXX	28,224	8,774	7,864	5,478	3,584	-434	28	76	--	40	--	53,634
Aspen	XXXXX	XXXXX	XXXXX	3,009	42	--	--	--	--	--	--	--	--	3,051
Cottonwood	XXXXX	XXXXX	XXXXX	--	277	--	128	16	116	--	--	--	--	537
Total hardwoods	XXXXX	XXXXX	XXXXX	3,009	319	--	128	16	116	--	--	--	--	3,588
All species	XXXXX	XXXXX	28,224	11,783	8,183	5,478	3,712	-418	144	76	--	40	--	57,222
	SAWTIMBER Thousand board feet, Scribner rule													
Ponderosa pine	XXXXX	XXXXX	20,416	7,408	7,267	4,585	3,389	-257	27	73	--	36	--	42,944
White spruce	XXXXX	XXXXX	--	98	-975	165	--	--	--	--	--	--	--	-712
Total softwoods	XXXXX	XXXXX	20,416	7,506	6,292	4,750	3,389	-257	27	73	--	36	--	42,232
Aspen	XXXXX	XXXXX	XXXXX	2,620	35	--	--	--	--	--	--	--	--	2,655
Cottonwood	XXXXX	XXXXX	XXXXX	--	260	--	119	15	106	--	--	--	--	500
Total hardwoods	XXXXX	XXXXX	XXXXX	2,620	295	--	119	15	106	--	--	--	--	3,155
All species	XXXXX	XXXXX	20,416	10,126	6,587	4,750	3,508	-242	133	73	--	36	--	45,387

Table 23--Annual mortality of growing stock and sawtimber on timberland outside National Forests by species and ownership class in western South Dakota, 1983

Species	Ownership class		
	Other public	Private	Total
	GROWING STOCK		
	Thousand cubic feet		
Ponderosa pine	64	1,862	1,926
White spruce	12	320	332
Total softwoods	76	2,182	2,258
Aspen	--	--	--
Cottonwood	--	--	--
Total hardwoods	--	--	--
All species	76	2,182	2,258
	SAWTIMBER		
	Thousand board feet, International ¼-inch rule		
Ponderosa pine	217	6,416	6,633
White spruce	46	1,129	1,175
Total softwoods	263	7,545	7,808
Aspen	--	--	--
Cottonwood	--	--	--
Total hardwoods	--	--	--
All species	263	7,545	7,808
	SAWTIMBER		
	Thousand board feet, Scribner rule		
Ponderosa pine	186	5,500	5,686
White spruce	38	937	975
Total softwoods	224	6,437	6,661
Aspen	--	--	--
Cottonwood	--	--	--
Total hardwoods	--	--	--
All species	224	6,437	6,661

Table 24--Annual mortality of growing stock and sawtimber on timberland outside National Forests by species and diameter class in western South Dakota, 1983

Species	Diameter class (inches at breast height)													
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	GROWING STOCK Thousand cubic feet													
Ponderosa pine	145	193	697	674	--	--	--	217	--	--	--	--	--	1,926
White spruce	89	--	--	--	243	--	--	--	--	--	--	--	--	332
Total softwoods	234	193	697	674	243	--	--	217	--	--	--	--	--	2,258
Aspen	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
All species	234	193	697	674	243	--	--	217	--	--	--	--	--	2,258
	SAWTIMBER Thousand board feet, International ¼-inch rule													
Ponderosa pine	XXXXX	XXXXX	2,527	2,872	--	--	--	1,234	--	--	--	--	--	6,633
White spruce	XXXXX	XXXXX	--	--	1,175	--	--	--	--	--	--	--	--	1,175
Total softwoods	XXXXX	XXXXX	2,527	2,872	1,175	--	--	1,234	--	--	--	--	--	7,808
Aspen	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
Cottonwood	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
All species	XXXXX	XXXXX	2,527	2,872	1,175	--	--	1,234	--	--	--	--	--	7,808
	SAWTIMBER Thousand board feet, Scribner rule													
Ponderosa pine	XXXXX	XXXXX	2,197	2,456	--	--	--	1,033	--	--	--	--	--	5,686
White spruce	XXXXX	XXXXX	--	--	975	--	--	--	--	--	--	--	--	975
Total softwoods	XXXXX	XXXXX	2,197	2,456	975	--	--	1,033	--	--	--	--	--	6,661
Aspen	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
Cottonwood	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	XXXXX	XXXXX	XXXXX	--	--	--	--	--	--	--	--	--	--	--
All species	XXXXX	XXXXX	2,197	2,456	975	--	--	1,033	--	--	--	--	--	6,661

Table 25--Annual mortality of growing stock and sawtimber on timberland outside National Forests by species and cause of death in western South Dakota, 1983

Species	Cause of death				
	Insects	Fire	Weather	Unknown	Total
	GROWING STOCK				
	Thousand cubic feet				
Ponderosa pine	244	217	1,258	207	1,926
White spruce	--	--	243	89	332
Total softwoods	244	217	1,501	296	2,258
Aspen	--	--	--	--	--
Cottonwood	--	--	--	--	--
Total hardwoods	--	--	--	--	--
All species	244	217	1,501	296	2,258
	SAWTIMBER				
	Thousand board feet, International ¼-inch rule				
Ponderosa pine	1,018	1,234	3,500	881	6,633
White spruce	--	--	1,175	--	1,175
Total softwoods	1,018	1,234	4,675	881	7,808
Aspen	--	--	--	--	--
Cottonwood	--	--	--	--	--
Total hardwoods	--	--	--	--	--
All species	1,018	1,234	4,675	881	7,808
	SAWTIMBER				
	Thousand board feet, Scribner rule				
Ponderosa pine	873	1,033	3,027	753	5,686
White spruce	--	--	975	--	975
Total softwoods	873	1,033	4,002	753	6,661
Aspen	--	--	--	--	--
Cottonwood	--	--	--	--	--
Total hardwoods	--	--	--	--	--
All species	873	1,033	4,002	753	6,661

Table 26--Area, net volume, net annual growth, and annual mortality of woodland outside National Forests by forest types, species, and ownership class in western South Dakota

Forest types and species	Ownership class		
	Other public	Private	Total
	- - - - - - - - - - - - Acres - - - - - - - - - - - -		
Forest types:			
Area, 1984			
Oak woodland	424	17,003	17,427
	- - - - - - - - - Thousand cubic feet - - - - - - -		
Species:			
Net volume, 1984			
Woodland hardwoods	256	7,854	8,110
Net annual growth, 1983			
Woodland hardwoods	3	80	83
Annual mortality, 1983			
Woodland hardwoods	--	--	--

Table 27--Cubic volume of industrial roundwood products harvested in western South Dakota by county of origin and product category, 1983

County	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	Thousand cubic feet		
Custer	4,295	350	4,645
Harding	146	--	146
Lawrence	7,466	480	7,946
Meade	2,010	106	2,116
Pennington	8,243	15	8,258
Total	22,160	951	23,111

[1]Includes utility and building poles, posts, and pulpwood.

NOTE: Tables 27 through 45 include National Forest, other public, and privately owned lands (McLain 1987).

Table 28--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by county of origin and product category, 1983

County	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	Thousand board feet, Scribner rule		
Custer	22,371	--	22,371
Harding	760	--	760
Lawrence	38,885	313	39,198
Meade	10,469	202	10,671
Pennington	42,932	32	42,964
Total	115,417	547	115,964

[1]Includes utility and building poles, posts, and pulpwood.

Table 29--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by county of origin and product category, 1983

County	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	- - - Thousand board feet, International ¼-inch rule - - -		
Custer	26,353	--	26,353
Harding	895	--	895
Lawrence	45,806	369	46,175
Meade	12,332	238	12,570
Pennington	50,574	38	50,612
Total	135,961	644	136,606

[1]Includes utility and building poles, posts, and pulpwood.

Table 30--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by owner group category and product category, 1983

Owner	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	- - - - Thousand board feet, Scribner rule - - - - -		
National Forest	93,466	547	94,013
Other Federal[2]	752	--	752
State	3,039	--	3,039
Private	18,160	--	18,160
Total	115,417	547	115,964

[1]Includes utility building poles, posts, and pulpwood.
[2]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 31--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by owner group category and product category, 1983

Owner	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	- Thousand board feet, International ¼-inch rule - -		
National Forest	110,103	644	110,747
Other Federal[2]	886	--	886
State	3,580	--	3,580
Private	21,392	--	21,392
Total	135,961	644	136,606

[1]Includes utility building poles, posts, and pulpwood.
[2]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 32--Cubic volume of industrial roundwood products harvested in western South Dakota by species and product category, 1983

Species	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	- - - - - - - - - Thousand cubic feet - - - - - - - - -		
Ponderosa pine	21,778	939	22,717
White spruce	382	13	394
Total	22,160	951	23,111

[1]Includes utility and building poles, posts, and pulpwood.

Table 33--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by species and product category, 1983

Species	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	Thousand board feet, Scribner rule		
Ponderosa pine	113,429	547	113,976
White spruce	1,988	--	1,988
Total	115,417	547	115,964

[1]Includes utility and building poles, posts, and pulpwood.

Table 34--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by species and product category, 1983

Species	Industrial roundwood products		
	Sawlogs	Other products[1]	Total industrial
	Thousand board feet, International ¼-inch rule		
Ponderosa pine	133,620	644	134,264
White spruce	2,342	--	2,342
Total	135,961	644	136,606

[1]Includes utility and building poles, posts, and pulpwood.

Table 35--Cubic volume of industrial roundwood products harvested in western South Dakota by county of origin and land owner or management agency category, 1983

County	Owner				
	National Forest	State	Other Federal[1]	Private	Total industrial
	Thousand cubic feet				
Custer	3,556	583	31	475	4,645
Harding	--	--	--	146	146
Lawrence	6,126	--	114	1,706	7,946
Meade	1,225	--	--	891	2,116
Pennington	7,640	--	--	618	8,258
Total	18,547	583	144	3,837	23,111

[1]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 36--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by county of origin and land owner or management agency category, 1983

County	Owner				
	National Forest	State	Other Federal[1]	Private	Total industrial
	Thousand board feet, Scribner rule				
Custer	18,519	3,039	160	653	22,371
Harding	--	--	--	760	760
Lawrence	29,719	--	592	8,887	39,198
Meade	6,031	--	--	4,640	10,671
Pennington	39,744	--	--	3,220	42,964
Total	94,013	3,039	752	18,160	115,964

[1]Land managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 37--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by county of origin and land owner or management agency category, 1983

County	Owner				
	National Forest	State	Other Federal[1]	Private	Total industrial
	Thousand board feet, International ¼-inch rule				
Custer	21,815	3,580	188	769	26,353
Harding	--	--	--	895	895
Lawrence	35,009	--	697	10,469	46,175
Meade	7,104	--	--	5,466	12,570
Pennington	46,818	--	--	3,793	50,612
Total	110,747	3,580	886	21,392	136,606

[1]Lands managed by Federal agencies other than USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 38--Cubic volume of industrial roundwood products harvested in western South Dakota by county of origin and species, 1983

County	Species		
	Ponderosa pine	White spruce	Total industrial
	Thousand cubic feet		
Custer	4,610	35	4,645
Harding	146	--	146
Lawrence	7,819	127	7,946
Meade	2,091	25	2,116
Pennington	8,051	207	8,258
Total	22,717	394	23,111

Table 39--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by county of origin and species, 1983

County	Species		
	Ponderosa pine	White spruce	Total industrial
	Thousand board feet, Scribner rule		
Custer	22,187	184	22,371
Harding	760	--	760
Lawrence	38,604	594	39,198
Meade	10,539	132	10,671
Pennington	41,886	1,078	42,964
Total	113,976	1,988	115,964

Table 40--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by county of origin and species, 1983

County	Species		
	Ponderosa pine	White spruce	Total industrial
	Thousand board feet, International ¼-inch rule		
Custer	26,136	216	26,353
Harding	895	--	895
Lawrence	45,475	700	46,175
Meade	12,415	156	12,570
Pennington	49,342	1,270	50,612
Total	134,264	2,342	136,606

Table 41--Cubic volume of industrial roundwood products harvested in western South Dakota by land owner or management agency category and species, 1983

Owner	Species		
	Ponderosa pine	White spruce	Total industrial
	Thousand cubic feet		
National Forest	18,232	315	18,547
State	584	--	583
Other Federal[1]	140	4	144
Private	3,762	75	3,837
Total	22,717	394	23,111

[1]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 42--Board-foot volume of industrial roundwood products (Scribner rule) harvested in western South Dakota by land owner or management agency category and species, 1983

Owner	Species		
	Ponderosa pine	White spruce	Total industrial
	Thousand board feet, Scribner rule		
National Forest	92,438	1,575	94,013
State	3,039	--	3,039
Other Federal[1]	731	21	752
Private	17,769	391	18,160
Total	113,976	1,988	115,964

[1]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 43--Board-foot volume of industrial roundwood products (International ¼-inch rule) harvested in western South Dakota by land owner or management agency category and species, 1983

Owner	Species		
	Ponderosa pine	White spruce	Total industrial
	- - Thousand board feet, International ¼-inch rule - - -		
National Forest	108,892	1,856	110,747
State	3,580	--	3,580
Other Federal[1]	861	25	886
Private	20,932	461	21,392
Total	134,264	2,342	136,606

[1]Lands managed by Federal agencies other than the USDA Forest Service, such as Department of Defense, Bureau of Land Management, and Bureau of Reclamation.

Table 44--Cubic volume of industrial roundwood products harvested in western South Dakota by size of mill, plant, or yard receiving products, 1983

Mill capacity	Production
Million board feet	Million cubic feet
More than 10	17.7
5.1 - 10	1.6
1.1 - 5	2.6
1 or less	1.2
Total	23.1

Table 45--Estimated cubic volumes of used and unused residues produced by primary wood processing plants in western South Dakota, 1983

Residues	Used					
	Product					
	Pulp	Hogged fuel	Other	Total used	Total unused	Total used and unused
	- - - - - - - - - - - - - - - Thousand cubic feet - - - - - - - - - - - - - - - - - -					
Bark	--	3,118	171	3,289 (75%)	1,083	4,372
Coarse	6,507	478	165	7,150 (79%)	1,906	9,056
Fine	402	867	3,558	4,827 (61%)	3,210	8,037
Total	6,909	4,463	3,894	15,266 (71%)	6,199	21,465

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Collins, Dennis C.; Green, Alan W. 1989. Western South Dakota: forest statistics for land outside National Forests, 1984. Resour. Bull. INT-65. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 45 p.

Presents land area, timberland area, timber volume, and components of change for forest lands in western South Dakota.

KEYWORDS: forest survey, timberland, inventory volume

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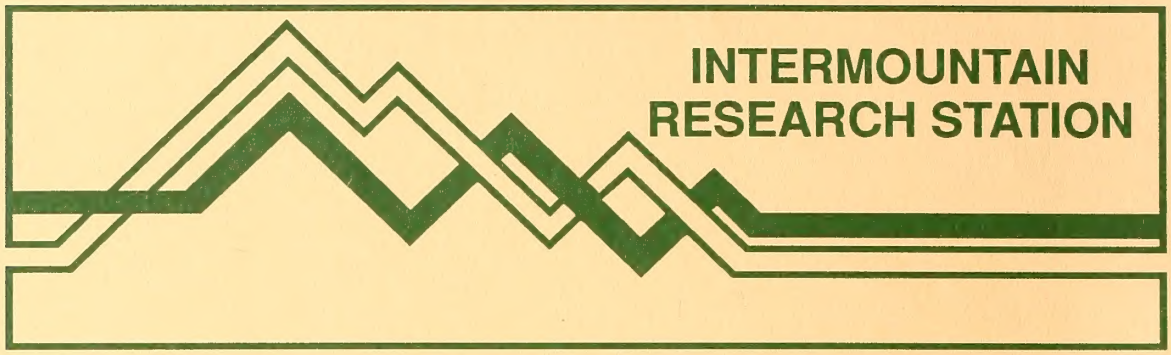

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